

TORQUATO VERISSIMO NETO



Madeira-Mamoré Railway

The Iconographic History

MADEIRA-MAMORÉ RAILWAY

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Torquato Verissimo Neto

North Press

Rondônia

MADEIRA-MAMORÉ RAILWAY: THE ICONOGRAPHIC HISTORY

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Neto, Torquato Verissimo

Rondônia: Madeira-Mamoré Railway – The iconographic History

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1. History of the Madeira-Mamoré Construction.
2. History of Rondônia

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To the first railwaymen of the Madeira-Mamoré Railroad to embark to Santo Antonio do Madeira in 1878:

C.W. Buckholtz, Paul T. Whiles, John Runk, Amos Hilles, C. D. Mothers,
R.A. Bruce, John R. Dougherty, John Coxe, Samuel Hull, C. B. Briabin,
F. H. Clements, C. A. Preston, John W. Clarck, Rodman Mellvain,
Willians Morris, James M. Stewart, T.C. Maher, W. Argyle Waters,
R.B. Evans, Arthur P. Herbert, E. H. Wingate, J. Howard Hesland,
A. I. Eltonhead, Charles Lunette, William Lafferty, W. S. Coughlins,
G.W. Creighton, Robert McCutcheon, James Dougherty, Frank Snyder,
C. F. Mayer, J. C. Patterson, Waiter L. Euston, T. W. Rawte,
Wyndham Robertson, W. A. Dellker, Eduard Stewart,
G. C. MacKay, Frederick Lorenz, H. B. Gill, Joseph Byers,
W. C. Wetterhill, Neville B. Craig, Charles Hyden, J. S. Wards,
R. K. Johnson, J. G. Vierra, Harry MacKibben,
John L. Secor and F. W. Kretchnan as a record for posterity

PREFACE

Due to the desire to rescue the iconographic history of the Madeira-Mamoré Railway that today is being swallowed again by the jungle after its deactivation in 1972; this book comes to light in a totally unusual way. It emerges from an insight during the post-text of a research project on the use of *Equus asinus*, specifically the mules, at the beginning of the industrial Revolution and the two great World Wars. Among the photographs selected for the work was a file with pack-train of mules used in the construction of the railroad from 1872 to 1912 in the captaincy of Mato-Grosso located in the State of Rondônia today. Bryan Hooley who lives in Bombay, India, had sent me by airmail about 300 photos of the railroad a few years earlier where pack -trains were employed of an inhuman way in a region so inhospitable to these animals. Unfortunately, the photographs had been modified in relation to the size and the original black and white format. The nitidus deteriorating state of the material required new modifications in the format and therefore artistic effects were added to erase smudges, dust, humidity, cuts or amendments so that the work was visually beautiful. This happened because of the fact that it was impossible to keep the photographs in black and white according to the work of the photographer Dana. B. Merrill contracted by Madeira-Mamoré Railway. Most of the photographs were numbered by Mr. Merrill and others by unknown, which makes the logical sequencing of the work difficult as they were taken. And, for this reason, they were added to this work in a random way so that they also do not represent the exact sequence of the laying of the rails. And, because it is an iconographic work only a

short explanatory introduction was added according to the theme, in order to avoid an unnecessary narrative of the facts, as it has been habit of several authors who venture to record the historicity of facts that visually speaks for themselves. The photographs not only is an accurate and up-to-date source of the history of Rondônia, but the detailed record of the birth of a State created by foreign pioneers who put their lives at risk to prove that it was possible to build a railroad in the middle of the Amazon jungle, despite the lethality of tropical diseases and the distance from the civilized world.

INTRODUCTION

Date of the imperial period the construction project of the first railroad in the Amazon. The owners of the native rubber trees who had taken possession of this immense region to extract the latex pressed the Emperor D. Pedro II for the immediate construction of a canal or railroad that circumvented the waterfalls and rapids of the Madeira river, which blocked completely the transportation of the rubber in Brazil as well as on the Bolivian side that did not have access at the time to the Atlantic Ocean if was not through of the Brazilian rivers. With the signing of the Treaty of Friendship between the two countries in 1867 the agreement allowed the contracting of Public Works under the command of George Earl Church to base the tracks following the route elaborated by Fanz Keller in an expedition of the previous year. From the engineering point of view the construction would be basically simple since the topography had large flat extensions, small elevations with hills or rocks, streams and narrow rivers. From the geographical point of view, the distance between the material to be used and the workforce seemed at first to be the biggest obstacle, since everything would be imported, not to mention that the Brazilian manpower of the high and low Madeira was allotted in the rubber extraction. Around 1872 the English firm arrives to Santo Antônio to build 400 km of train tracks in the route that would circle the 40 waterfalls and rapids of the giant Madeira River that was the main navigation channel in the Gold Route since the passage of the trail-brazer Raposo Tavares in 1864. To paint a historical picture with few brushstrokes, it is enough to mention that Public Works was forced to abandon the work before starting because of the deadly attack of the anophelino mosquito. Two years later the engineers and workers of the american company Dorsay & Caldwell take over the work in Santo Antônio, but the

tropical diseases mercilessly prevented the construction and the concession was transferred to the English group of the Reed Bross & Co. Because of the lack of interest of the English company in to restart the work G. E. Church hires the american firm P. & T. Collins in 1877. The Collins abandoned 1879 the seven kilometers of rails built by the company alleging the impossibility of touching the work due to the constant attacks of the Caripuna indians during topographic survey.

The construction of the Madeira-Mamoré Railway was paralyzed until the Republicans with the famous "Brazilian Knack" gave on a silver platter to Percival Farquhar a good part of the Amazon. In 1907 the american company May, Jakyll & Randolph contracted by Farquhar restarts the construction of the railroad where today it is Porto Velho, capital of the State of Rondônia and no longer in Santo Antônio that was 7 kilometers upstream. The powerful Madeira-Mamoré Railway Co. founded by P. Farquhar has coordinated the services of the new contractor by providing to the employees and engineers with a modern industrial complex on the banks of the Madeira River with hospital, warehouses, sawmills, ice factory, laundries and a modern village of buildings that equated the unhealthy housing conditions faced by previous builders. In 1912 the railroad that started in Porto Velho reached Guajará-Mirim on the border with Bolivia 366 kilometers away.

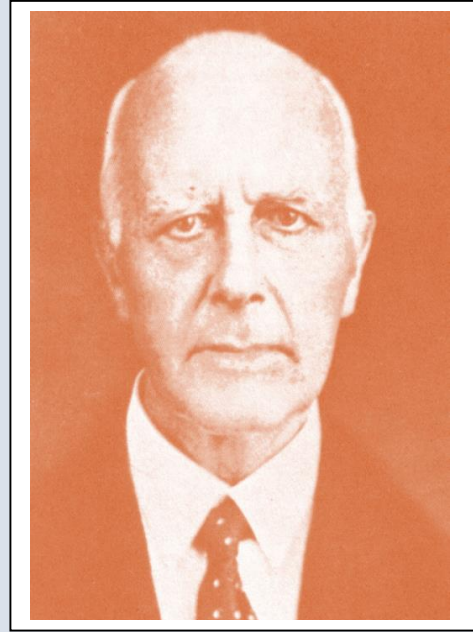
PEOPLE

The immense green carpet that covered the Brazilian Amazon at the time of construction of the Madeira-Mamoré Railway may not have frightened its builders as you might imagine. The thousands of laborers - who daily arrived on the banks of the great Madeira River which was accustomed to swallowing giant trees, trampling their ravines with the force of their muddy waters - were accustomed to the hard work of other railroads and inhospitable places as well. Tropical diseases were neither more nor less virulent than those reaping lives in other parts of the world. Therefore, during the period of their construction, those who disembarked here were in search of the Amazonian El Dorado, and were willing to lose their souls if necessary. The size of the contingent used to fix almost 400 kilometers of rails is not known until the time the work was definitively completed.

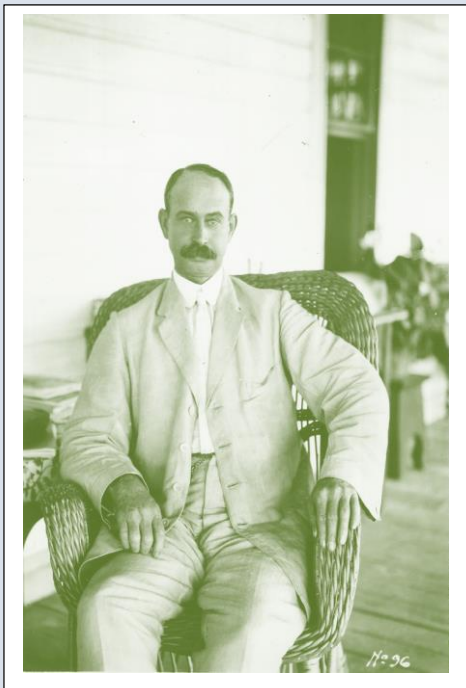
However, it is speculated that a workforce of at least 22,000 men was used. From the most diverse foreign nations these people transformed the dense forest into a multicultural territory in the middle of the jungle. British and Americans were at the top of the pyramid in the select group of engineers, doctors and railroad administrators. It left to the Italians, Spaniards, Chinese, Indians, and lastly to the Barbadians, the hard work on the service fronts. It is worth noting that a small number of Brazilians fleeing from the Northeast Drought were also used. The lethality of malaria, perhaps, was the greatest cause of mortality in the camps and in the hospital of Candelária, so that among other causes records indicate at least 1,500 deaths between 1907 and 1912. The photographs clearly show that the "English style of life" was kept in jungle and that there was a huge gap between bosses and workers.



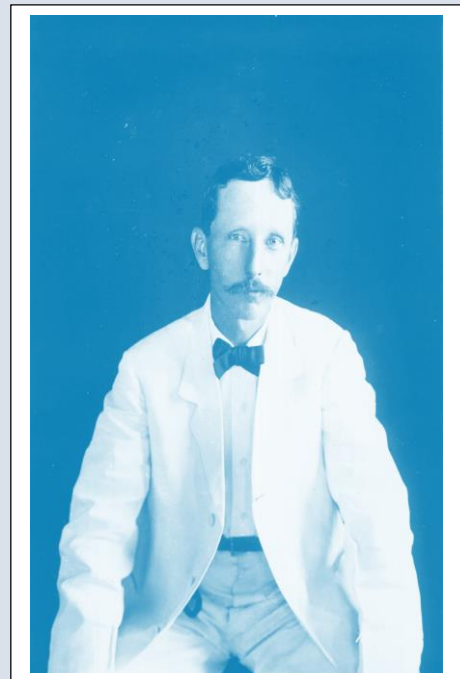
Dana B. Merrill



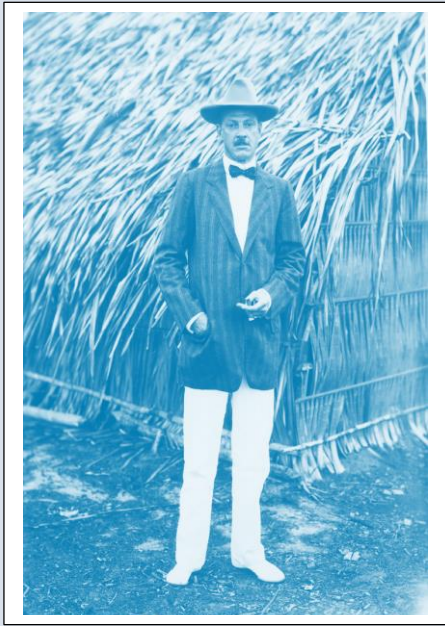
Percival Farquhar



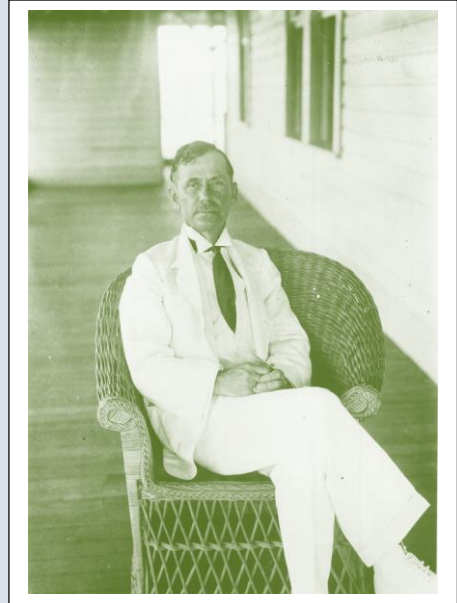
Mr. Jekyll



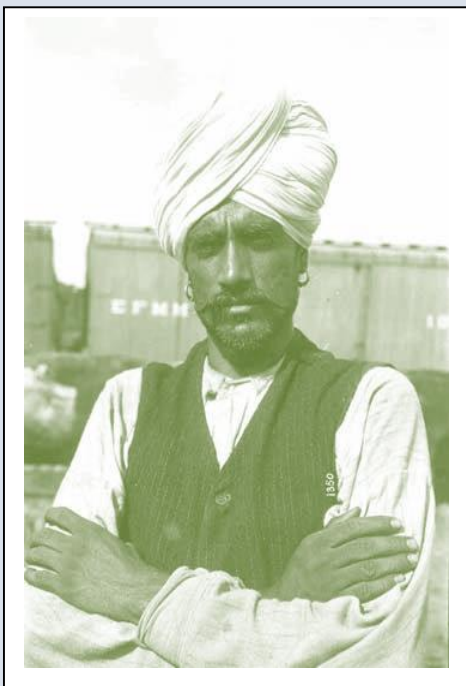
Mr. John Y. Bayliss



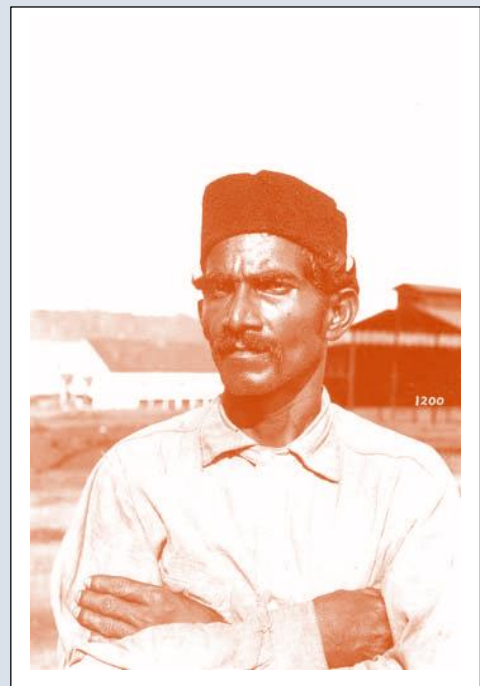
Tallyman



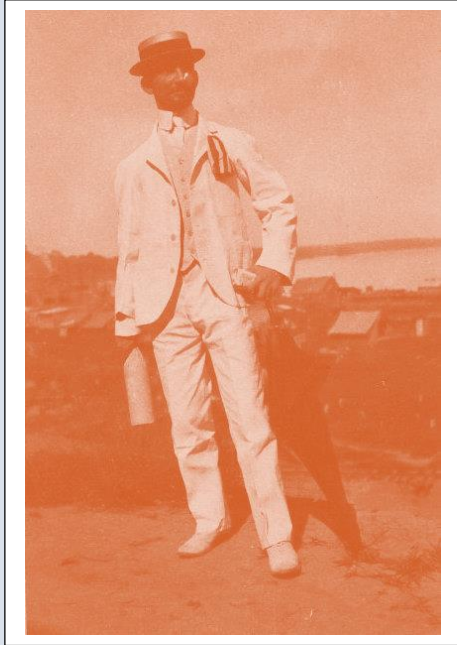
Mr. Randolph



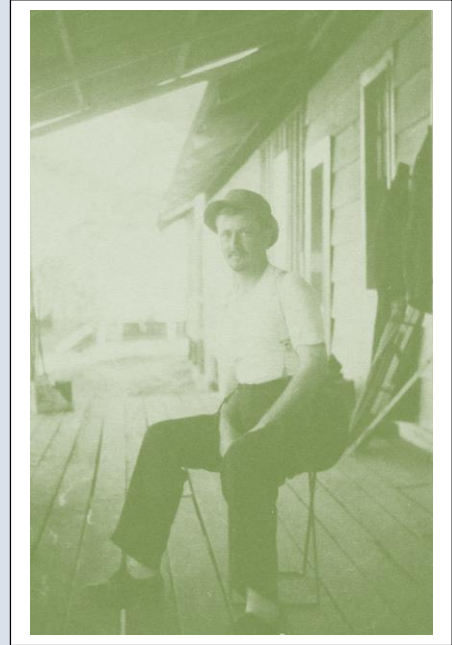
West Indian Navvy



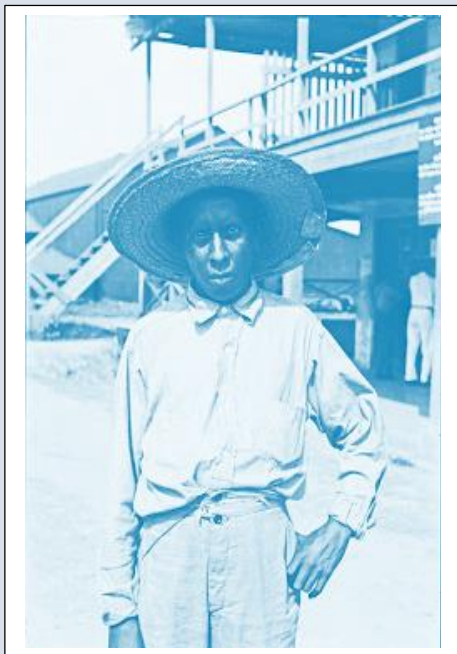
Track jobber



Office Worker



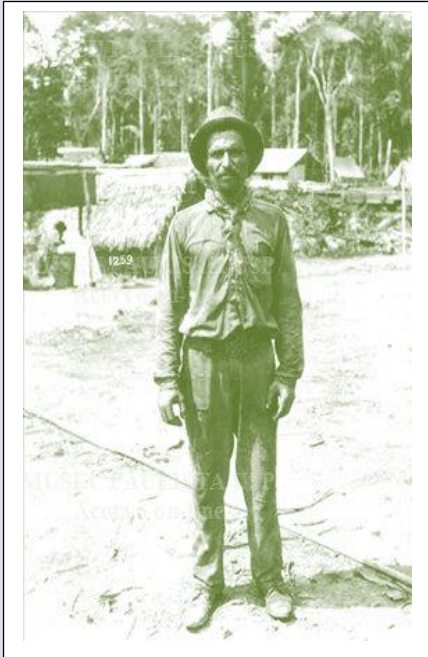
Caretaker of the yard



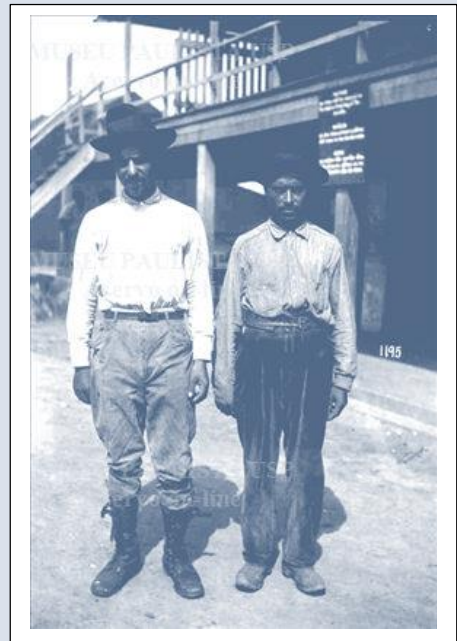
Barbudian Worker



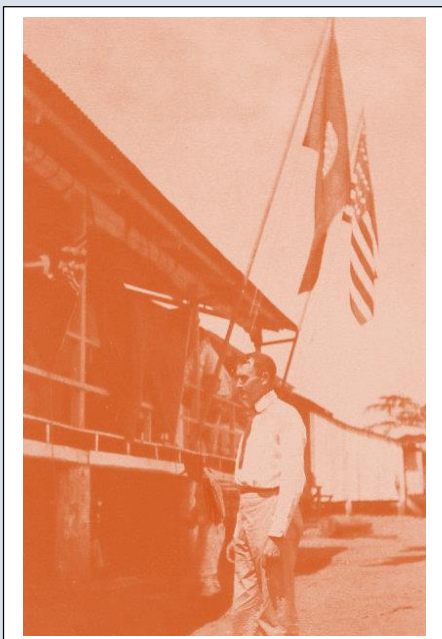
Station Watchman



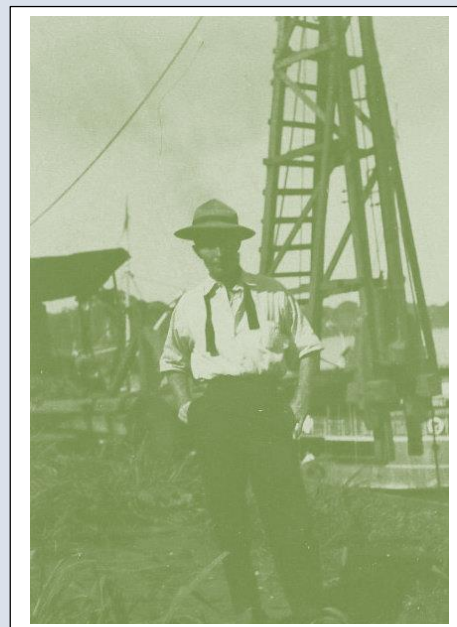
Jungle worker



Railroad workers



Mananger of the Company



Civil Engineer



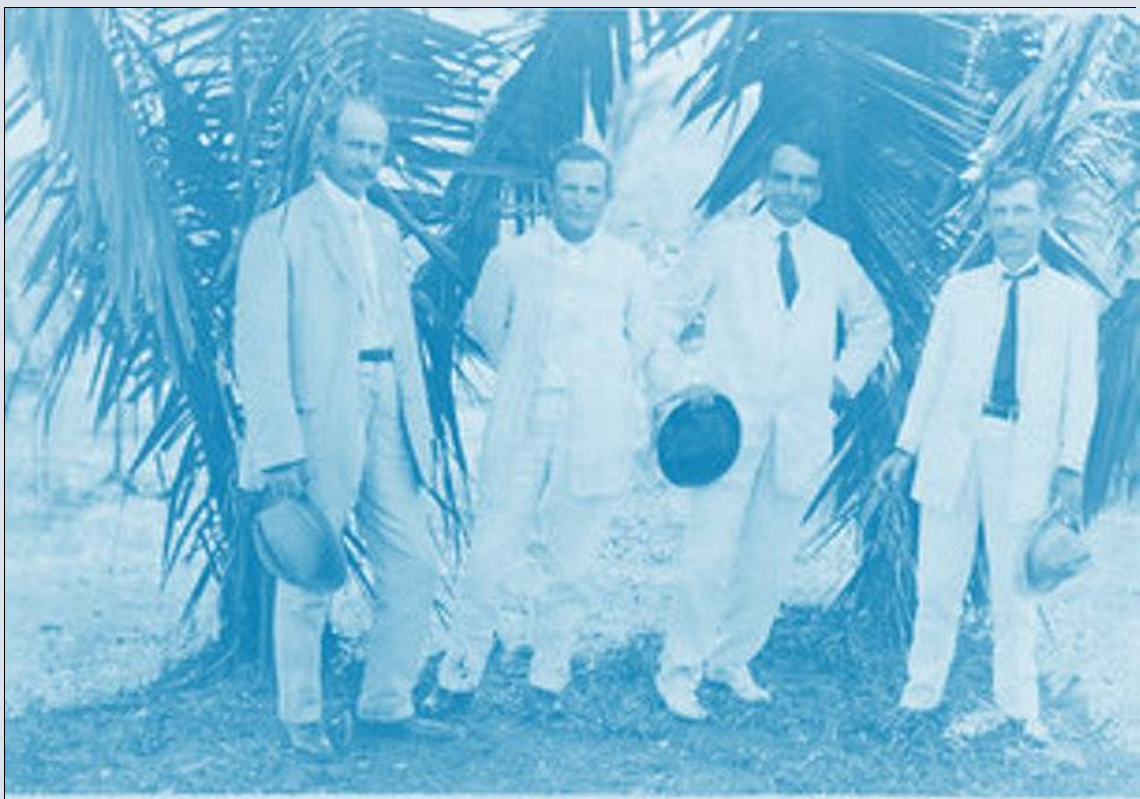
Mr. Dose, Mr. Randolph, Mr. Jekyll and Mr. May



Company Contractors Meeting in the Town of Porto-Velho



Contractors of the Madeira-Mamoré Railway in front of a housing



Jekyll, Randolph, May and Dose under palm tree (babaçu).



Engineers from Madeira-Mamoré on the banks of the Madeira River where would be built the railroad from Porto Velho to Guajará-Mirim in the frontier with Bolivia.



Engineers group after a working reunion



Workers on a day off in Porto Velho in 1912



Inauguration of part of the railroad by railway workers



Workers at the base camp along the iron line



Technical visit of the engineers to the rails



Workers in front of the typical base camp



American engineers supervising stretch of the track line



Construction site at Central Station in 1908



Group of engineers and Brazilian officials inside the jungle



Dr. Lovelace

Dr. Oswaldo Cruz

Dr. Belizário



Laundry staff and a servant Caripuna Indian in 1910



Laundry employees on a normal day in the Town of Porto- Velho



Day off from the engineers under the giant Sumaúma tree



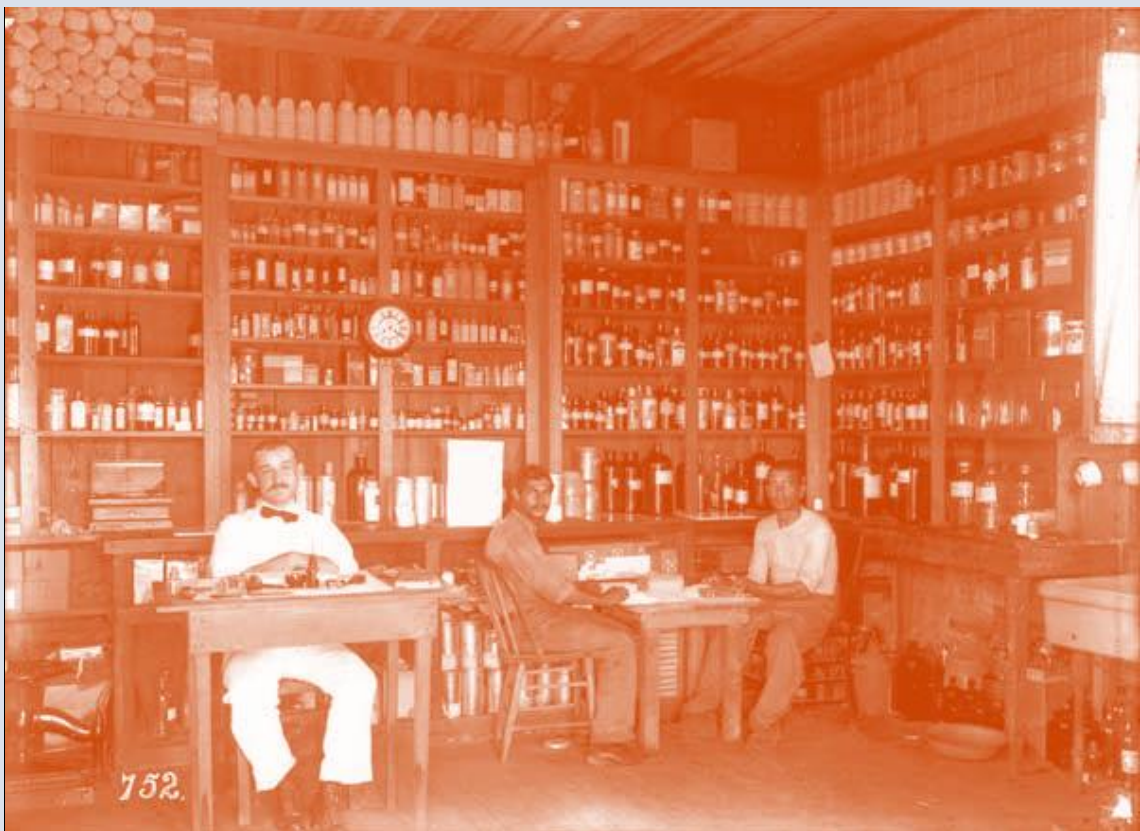
Agents responsible for logistics work



Clothes and uniforms of the party of engineers in the laundry



Women of the Caribbean islands



The everyday life of a small trade in the Central Station



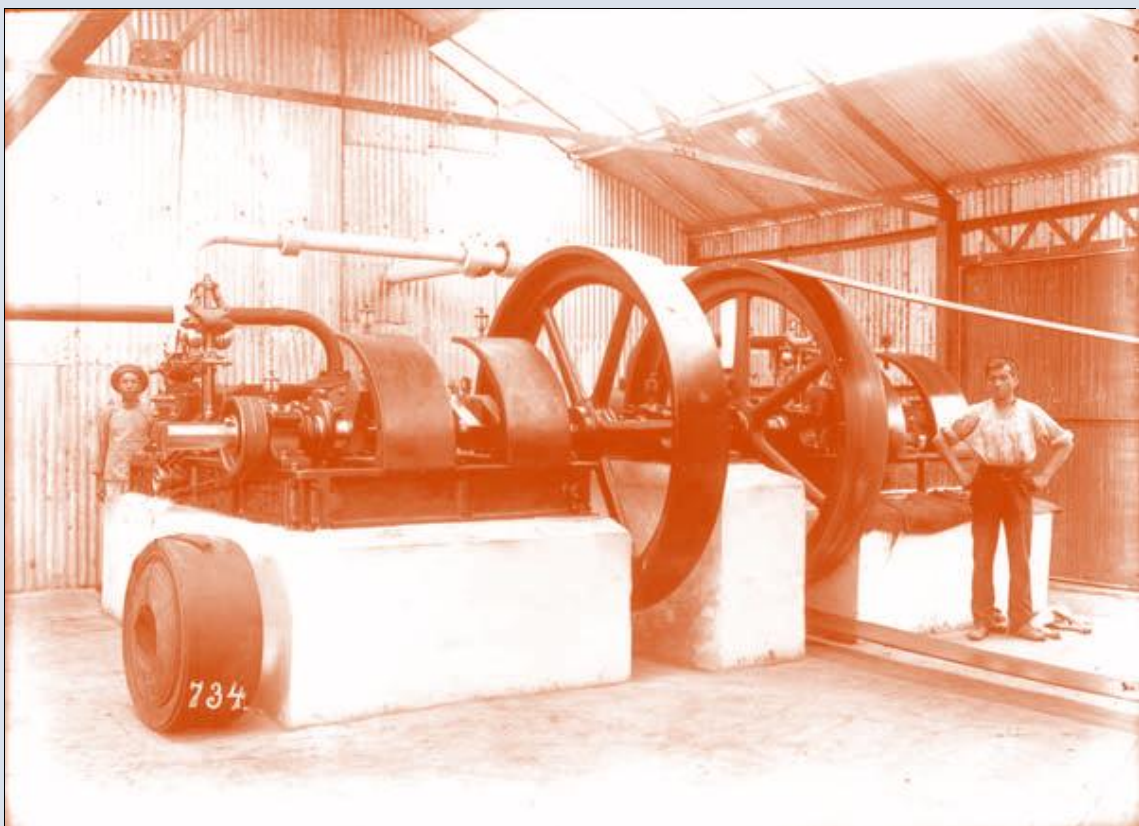
Lone Seller about 1910



Dry & Wet Store at railroad headquarters



The daily life of an engineer and his wife



Factory in 1909 on the banks of the Madeira River



Workers from Antigua and Barbuda



Playing cards in the middle of the jungle



Boa snake killed by railroad builders



Workers wearing masks against malaria's mosquito

LOADING AND UNLOADING IN THE HARBOUR

It was very difficult the navigation during the Amazonian summer in the stretch of more than 1000 kilometers of the Madeira River, starting from its embouchure to Santo Antônio do Madeira in the province of the State of Mato Grosso by the ships contracted by Madeira-Mamoré Railway Co. At that time the docking of vessels in the improvised port of Santo Antônio was hampered immensely due to the large number of rocks in the riverbed. The company then decided to create a new port at kilometer 1027 due to the topography of the site to allow loading and unloading of large steam ships such as the Mercedita that carried up to 1000 tons. In the photographs below one realizes that the volume of passengers, machines, dormants and iron was astonishing. The trip lasted about two months from Philadelphia in the United States to Porto-Velho in the State of Amazon at that epoch; as a result, the engineers determined the construction of the Central Station in that place as well. The vessels that departed from the piers of Philadelphia were destined to the port of Pará, a journey that lasted for about 15 days. Then the steamerhips sailed from there another 900 miles until Porto-Velho following upstream the Amazon and the Madeira. The Bolivian Navigation Company was responsible by the transport of workers, machines, equipment, hardware, beverages, food and meats and on the return trip took rubber out of Brazil



Cargo ship unloading on the pier of Porto-Velho



Rails over the Madeira River to receive the vessels



Vessel in the middle of Madeira River during drought season



Steam ship "Falk" anchored on the banks of the Madeira River



Arrival of the ship Falk to Town of Porto-Velho



Provisional anchorage of a cargo ship for unloading



Ship leaning on the unfinished harbour boarding passengers



Debarkation during arrival at the headquarters of the railroad



Company's employees arriving at Harbour



Improved pier for loading and unloading about 1908

THE STRAW HUTS ALONG THE IRONROAD

When the English firm “Public Works” has arrived in 1872 at the waterfall of Santo Antônio, the bottom line of the railroad, found a village of rubber tappers in a scenario of misery and desolation, living there exclusively from the use of the natural resources of the forest with the irregular aid of provisions that left of the harbour of Belém in the State of Pará. The adaptation was a natural process of the builders of Madeira-Mamoré Railway to new reality of the place. The first dwellings of the company's employees were shacks and shanty huts abandoned by the rubber tappers. It is called tapera in the Amazon an improvised construction made of rods, titica vine (*Heteropsis flexuosa*) and babaçu straws (*Attalea speciosa*), one of the most common palms in the region. Shack is a housing made of mud walls, covered with straw of buriti (*Mauritia flexuosa*), which was another common palm tree along the path where the rails passed. American contractor P. & T. Collins in 1877 also used the same type of housing until it gave up of the railroad in 1979. The May, Jekyll & Randolph Co. maintained this type of facility in the base camps every 10 kilometers along the line. By adopting Porto - Velho as starting point of the railway, it built a modern sawmill that allowed the construction of wooden houses replacing the huts. The workers slept in (tarimbás) bedsteads of green rods and hammocks.



Straw Hut and a group of hunters of the Madeira-Mamoré Company



Common housing in all camps made of Babaçu leaves



Canvas Tents of the first expedition of the Keller Brothers



Workmen and Hunters displaying the leather of Jaguar



Workmen in front of a typical accommodation



Typical houses of the rubber tappers that were used by the railwaymen



Medical Station along the iron line and other basic services



Workforce and their Best friends



Camp in the clearing under the trees



A break for rest on the stair



Small village of houses next to the railway



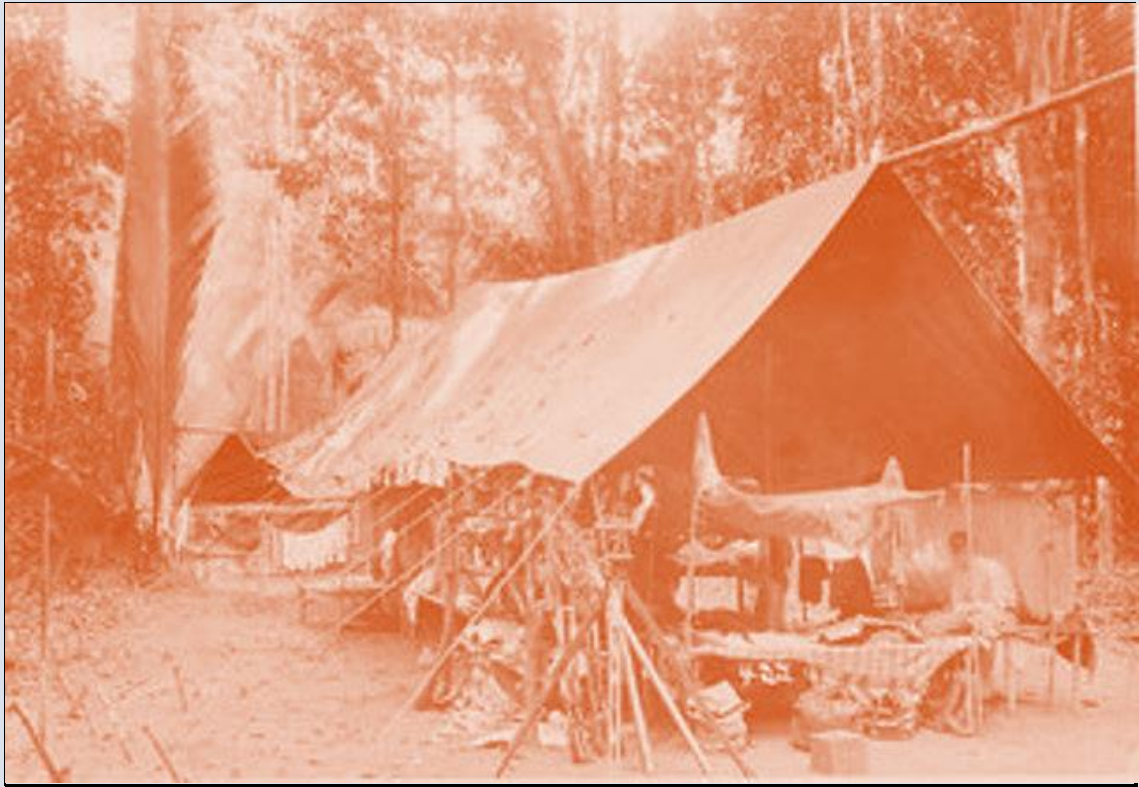
Houses in a grounding area prior to the laying of the rails



Typical open accommodation within the jungle



Straw huts in an open stretch in the forest about 1907



Canva tent in a clearing next to a brook (Igarapé).



Straw huts in the back of the road in 1907



Housing nestled in the jungle



Embassy of foreign workers in the village of Santo Antônio



Straw hut on stakes in a flooded region during dry period



Stone crusher operating in full power during the line building



Typical Indian Maloca used by the jungle workmen



Railroad workers visiting rubber tappers in the jungle



Railroad men Camp made of canvas and rods near at Mutum- Paraná



Grounding area under the rails near to Santo Antônio



Camp at the beginning of a new stretch to be built



Workers leaving the camp for a new day in the jungle



Deforestation in a railway construction area



Construction of straw huts in a clearing



Camp chief posing for the photographer Dana Merrill around 1907



View of a long stretch of road without any dormants



Deforestation to the headquarters of Madeira-Mamoré Railway



Camping with Babaçu palm tree to the background

HOUSES AND BUILDINGS ON THE BANKS OF THE MADEIRA

The urbanization process of the area of the Central Station of the Madeira-Mamoré Railway is due to the outbreak of malaria and yellow fever that already scared the builders of the line in previous phases before even the choice of the new site to restart the works By May, Jekyll & Randolph Co. With the assembly of the sawmill begins a new phase that enabled the establishment of a modern village of houses and buildings built with local wood. This type of construction allowed the use of protection canvas against the malaria mosquito and other insects that invade the straw huts day and night. In the photographs it can be seen that the railway builders made beautiful houses that served as residences for the engineers, administrators and doctors of the company all fenced with canvas as they had done during the construction of the Panama Canal, where the Sanitary situation was no less different than that found in Porto-Velho. The fundamental milestone against diseases such as malaria, yellow fever, beriberi, measles and pneumonia that invalidated hundreds of workers monthly was, without a doubt, the construction of the Hospital of Candelária. There Dr. Belt deployed an advanced center to diagnose tropical diseases, with daily distribution of quinine doses for all sick and healthy workers on the work fronts. It is estimated that 30 thousand people were treated at that location in the final phase of the entrepreneurship. Dr. Oswald Cruz who was on site in 1910 and he was one of the creators of the sanitation project of the Village of the railwaymen and health stations along the railroad in all camps.



Modern house in the last phase of the construction of the railway



Closed house built with grilles against tropical insects



Company's administrative headquarters



House of Engineers team of the May, Jekyll & Randolph Co.



The house that lived Mr. Jekyll during his stay in Porto-Velho



Meeting at the railroad chief's house in the Candelária



Official house of Dr. John while he was in Porto-Velho



Workers receiving payment of 36 dollars per each month



Central office Building on the bank of the Madeira-River



First modern hotel of Porto-Velho in 1908 built by the M.M. Company



Candelária Hospital near the Central Station and warehouses



View of the hospital under the chestnut trees



View of the hospital of Candelária and other facilities



Candelária hospital room full of Malaria patients



Candelária Hospital at the top of the ravine about 1909



Hospital of Candelária and other facilities in the courtyard of the station



Dr. Belt residence in the Town of Porto-Velho about 1908



Workmen displaying a giant boa of 8 meters long



Typical residence of the owners of the railway



Decorative objects brought from the USA



Party of Engineers on a day off facing the Madeira River



The first buildings of the Town of Porto-Velho being raised



Facilities of the railroad ready on 1909



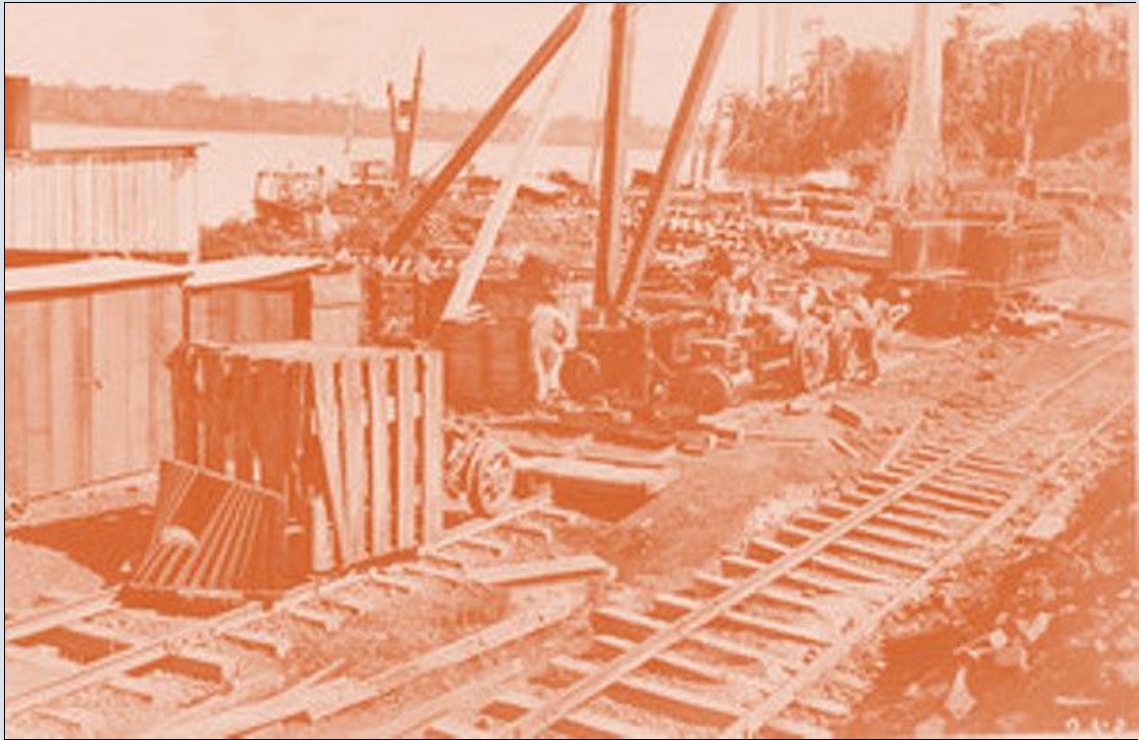
Retail commissary next to the rails about 1910



Dr. May's house one of the owners of the construction company



Warehouses on iron rails along the track



Loading of sleepers in the courtyard of the construction company



Receiving area of imported materials from the Philadelphia



The station's yard being erected under a large Sumaúma tree



Drainage of the deposits area near the Madeira River



Foundation of the pillars of the Porto-Velho Station Office



More comfortable facilities for the workers



Open clearing for the storage of construction materials



New employees being registered by the company



Normal day of payment on the bank of the Madeira



Hotel built by railwayman fired from the railroad



A Sumaúma and a Castanha trees that escaped from deforestation



Steam-powered electricity plant in the township of Porto-Velho, 1908



View of the corner of the Madeira River



First sawmill of the village of railwaymen in Porto-Velho



Dormants dispatch area next to the rails



View of the village and the stacks of Australian dormants

RAILWAY STATION

The Central Station of Madeira-Mamoré Railway was built on the banks of the Madeira River in the town of Porto-Velho, where the headquarter of Madeira-Mamoré railway Company was founded by Percival Farquhar to administer the railroad and warehouses for the storage of Goods arriving from Belém do Pará to be distributed the other 4 smaller stations along the line, where they were withdrawn by the rubber tappers as part of the payment for rubber. Starting from Porto-Velho the first station was located in the village of Jaci-Paraná in the kilometer 90 until there the train stopped in the trackside water tank of Teotônio at km 24, São Carlos at km 47 and 74. The second station was Abunã in the kilometer 219 with previous stop in the water tank of the calderão km 110, Girau km132, Mutum-Paraná at km 169 and 206. The locomotive still stopped in the water tank of Taquaras at km 249 and Periquitos km 275 before reaching Vila Murtinho which was the second largest station in revenue at km 315 and then after it there was only Guajára-Mirim the last station on the border with Bolivia. Although there were already these mandatory stops, by determination of the company the train should stop at any point along the line when requested. Vila Murtinho was a station that played an important role in the rubber cycle because it was located at the confluence of the Mamoré and Beni rivers from where the rubber of the Bolivian seringals was drained.



Central Station of Madeira-Mamoré Railway Co. in Porto-Velho



Railroad yard and its unfinished rails



Warehouses and repair workshops in front of the tracks



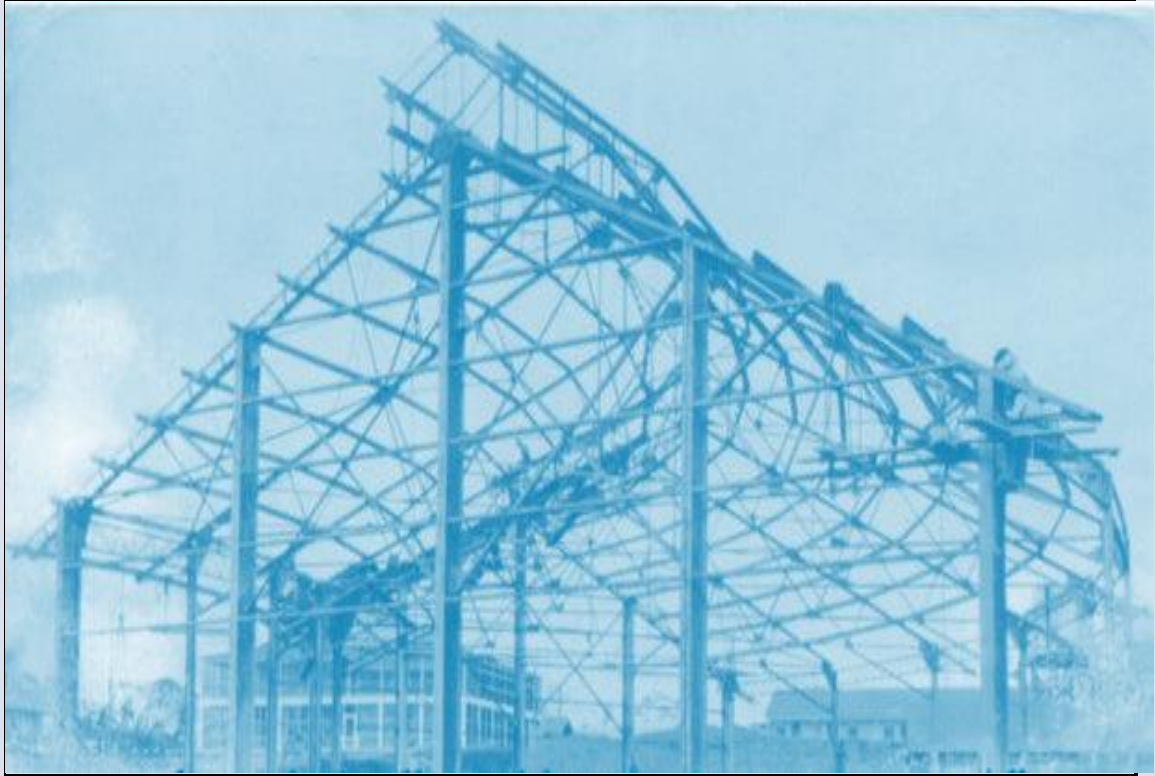
Urbanization of the Village and the implementation of the railroad



Topographic work under the command of the engineer L. T. Gregerson



Sawmill installed on the bank of the Madeira River



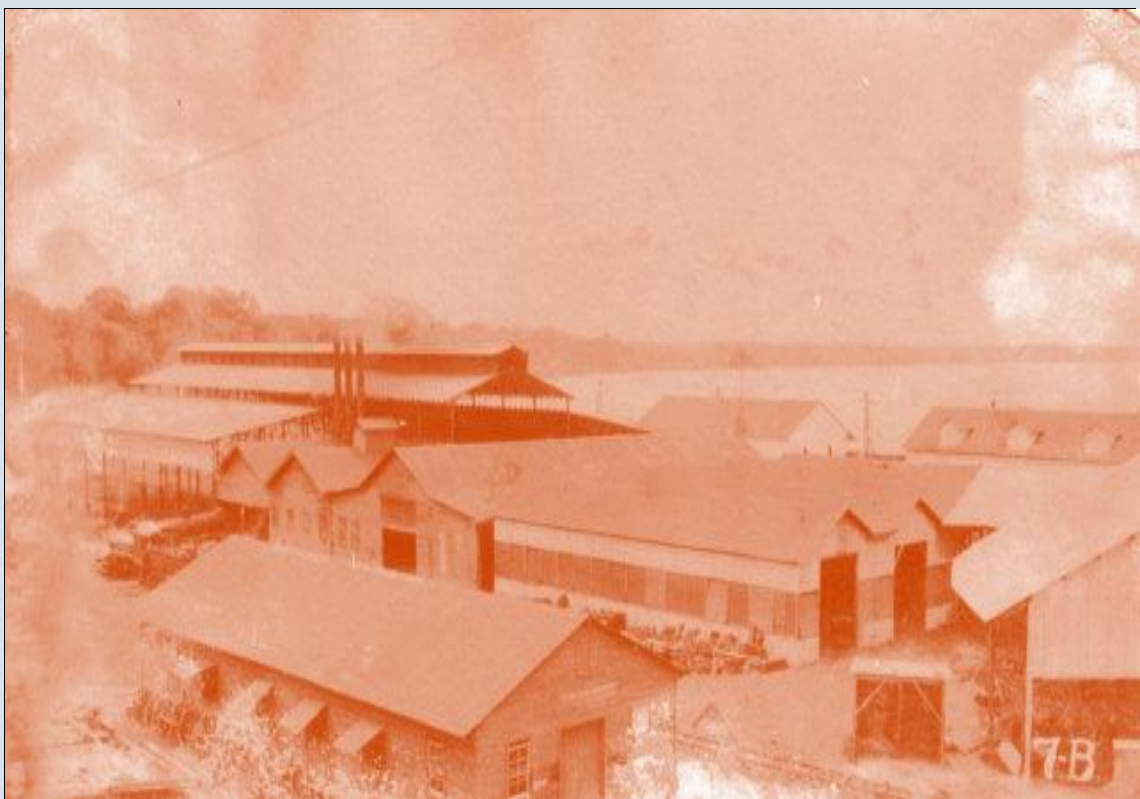
Roundabout being built with steel plates for the Central Station



Warehouse in final phase of coverage in 1910



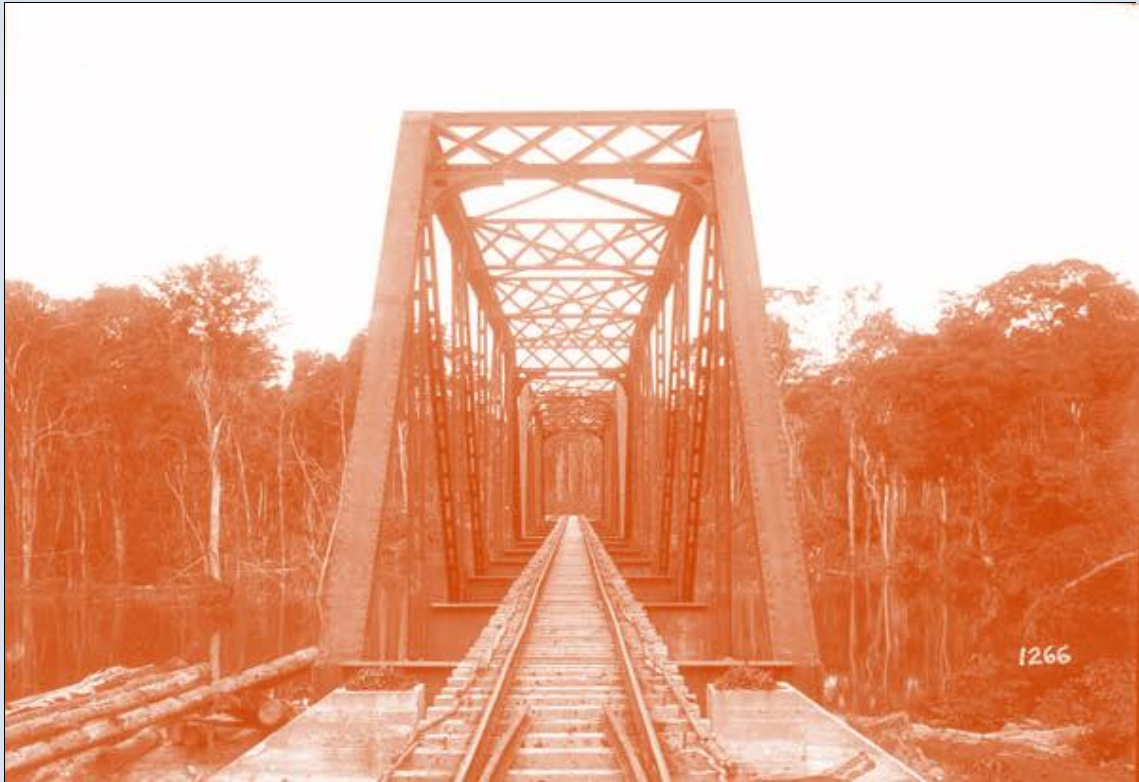
Overview of facilities next to the Madeira River



Station, warehouses, office building and shop repair beside the Madeira

THE IRON BRIDGES AND CULVERTS

The large cargo ships that departed from the American ports with destinations to Porto-Velho also carried, in addition to the iron rails, tons of metal structures for the construction of the bridges on the tributaries of the Madeira River. Dana B. Merrill has faithfully portrayed the lengthy process of assembling the bridges and culverts across the line extension. The railway was built by bordering the right side of the Madeira River, which receives water from thousands of streams that cut the railroad in several sections, and it was necessary to install huge manholes in order to allow the passage of the train. It stands out for the awesomeness and grandeur the bridges on the Jaci-Paraná and Mutum-Paraná rivers all of black steel. However, there were also other smaller bridges of equal architectural beauty on the rivers: Calderão, Taquaral, Periquitos, Laje and Bananeiras. The great waterfalls and rapids of the muddy Madeira, after the installation of the railway line and its bridges were being forgotten as the whole traffic of goods and passengers flowed between the tracks. It went to the workforce of more than 20000 men employed at all stages of the implantation of Madeira-Mamoré which gave to the “Amazonids” both Brazilians and Bolivians the possibility of occupying the Amazon region that until that time was part of a lost world, where only the adventurers in search of gold, latex and Brazil nuts dared to defy.



Black Frame Bridge were built on the rivers that cut the tracks



Pure steel bridge over the Jaci-Paraná River



Party of engineers and workmen tinkering damaged bridge



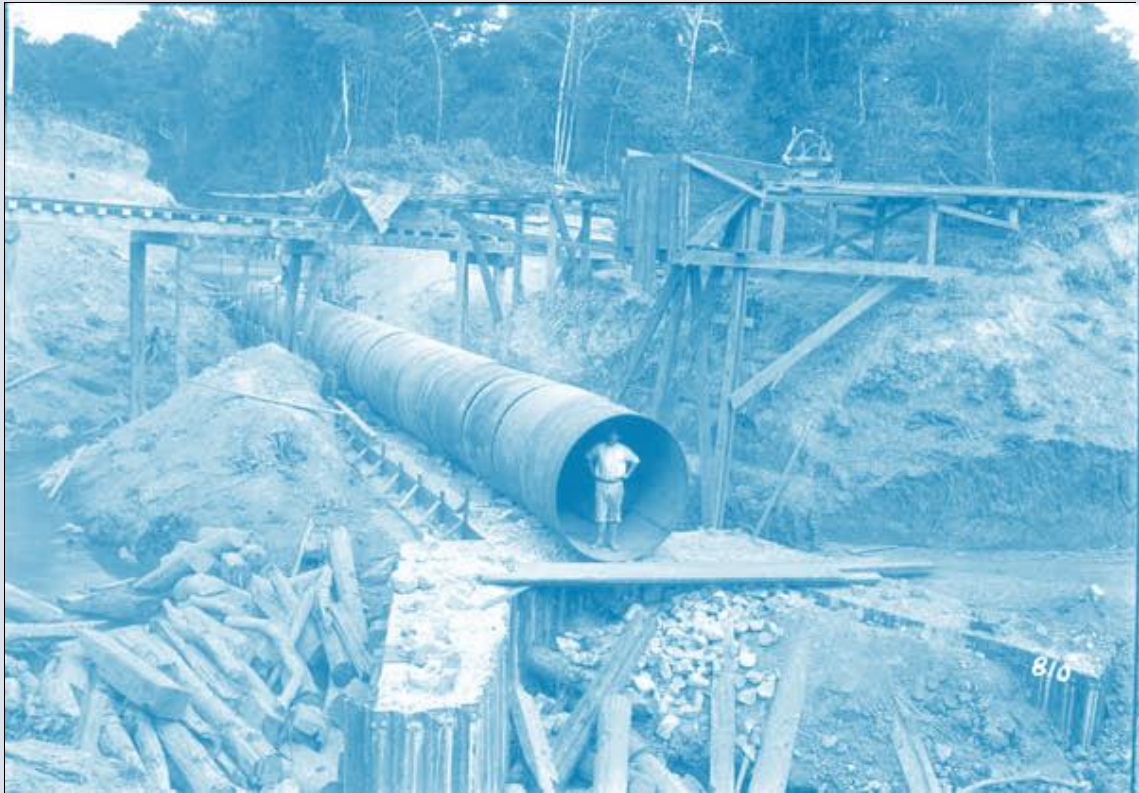
Brazilian inspectors surveying the works of the rails



Temporary wooden bridge to receive the iron line near to Santo Antônio



Mutum-Paraná bridge in the heart of the Amazon jungle about 1910



Giant manhole of 1.80 meters high built in a small creek(igarapé).



Workman standing upon a manhole about 1910 in a stretch of road



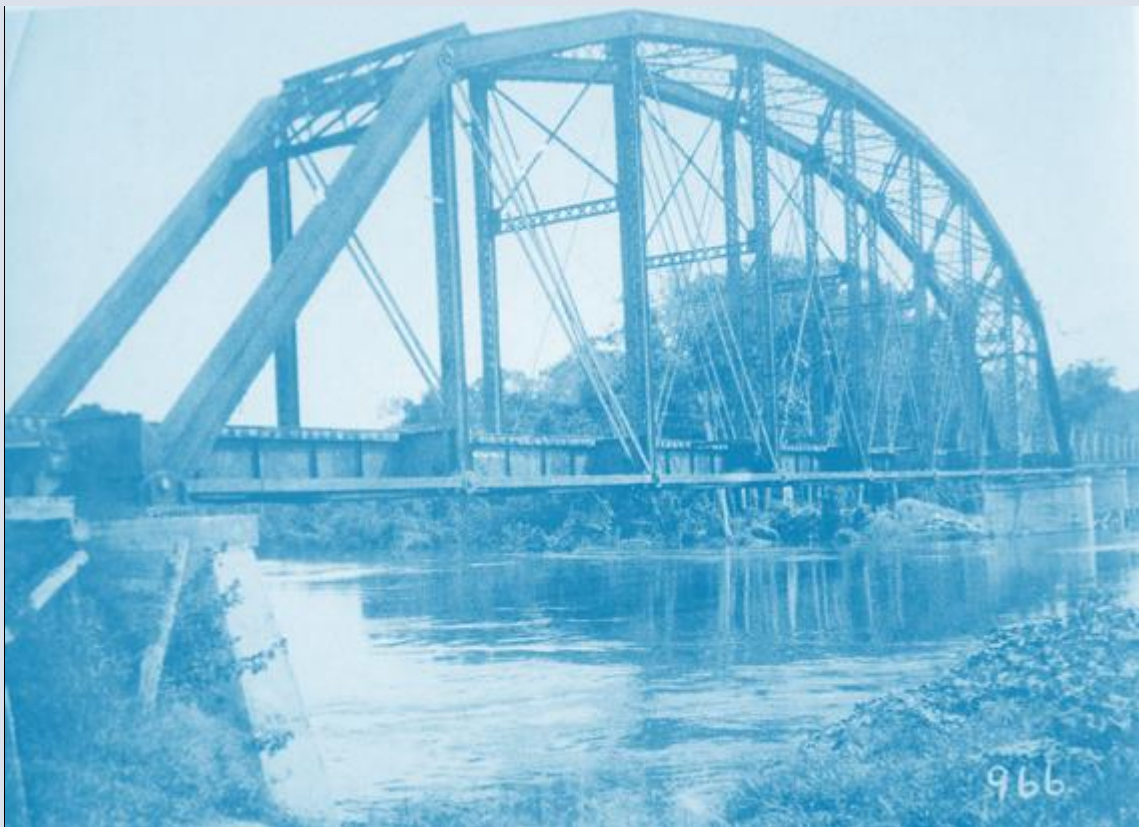
Concrete manhole under river cutting iron road in 1910



Metallic bridge over the Mutum-Paraná river made in the year of 1911



Provisional bridge of wooden rods during the year of 1907



Bridge over the Jaci river made of steel and reinforced concrete in 1911

MULES AND THE HARD WORK

Mules and hinnies have come to be used as ideal animal for riding and, mainly cargo transport long after the domestication of the african ass there are at least 4000 BC years in Egypt. The fact is that being a hybrid animal, resulting from crossing the jackass with a mare or a horse with a jenny, mules and hinnies are very strong, surefooted, long-lived and stubborn. For this reason, mules use was very common for railway builders as pack animals, to pull carts, wagons and for hard works. When these animals were employed in transport loads, they fundamentally changed the course of great works, which would not go out of the paper without their cooperation. There is no official record of how many mules and horses were employed in the implantation of the Madeira-Mamoré Railway, however the photographs reveal that there was a large number of this type of animal running through the camps as the rails went advancing. The geographical and logistical challenges forced the construction company to buy most of the pack trains that worked in the line of the rubber tappers of the region, and others were embarked in Belém do Pará to the Port-Velho. The pack trains in general had as their function to carry water, food and medicine, in addition to the monthly payment of the workers who remained camped until the end of each stretch of the railway, and the laborers could not circulate freely between the company's headquarters and the camps, unless they were left there to treatment of the regional diseases in the Hospital of Candelária that belonged to the company.



Paymasters mounted on Mules towards the camps in 1907



Payment of wages by the paymasters in the camps about 1907



Pack-train of mules arriving at base camp in 1908



Pack-train of mules loaded with dynamite and other basic materials



Excavated stretch in the middle of the jungle about 1908



Lone worker and his mule traveling by the forest in 1908



Supervisor of work surveying open stretch in the woods



Stump of a Castanha tree in the middle of the way about 1907/1908



Riding mules available only to the Chiefs and guardians



Mules on roadside bed along the track in the forest about 1907



Mules crossing swampy area in the township of Abunā in 1908



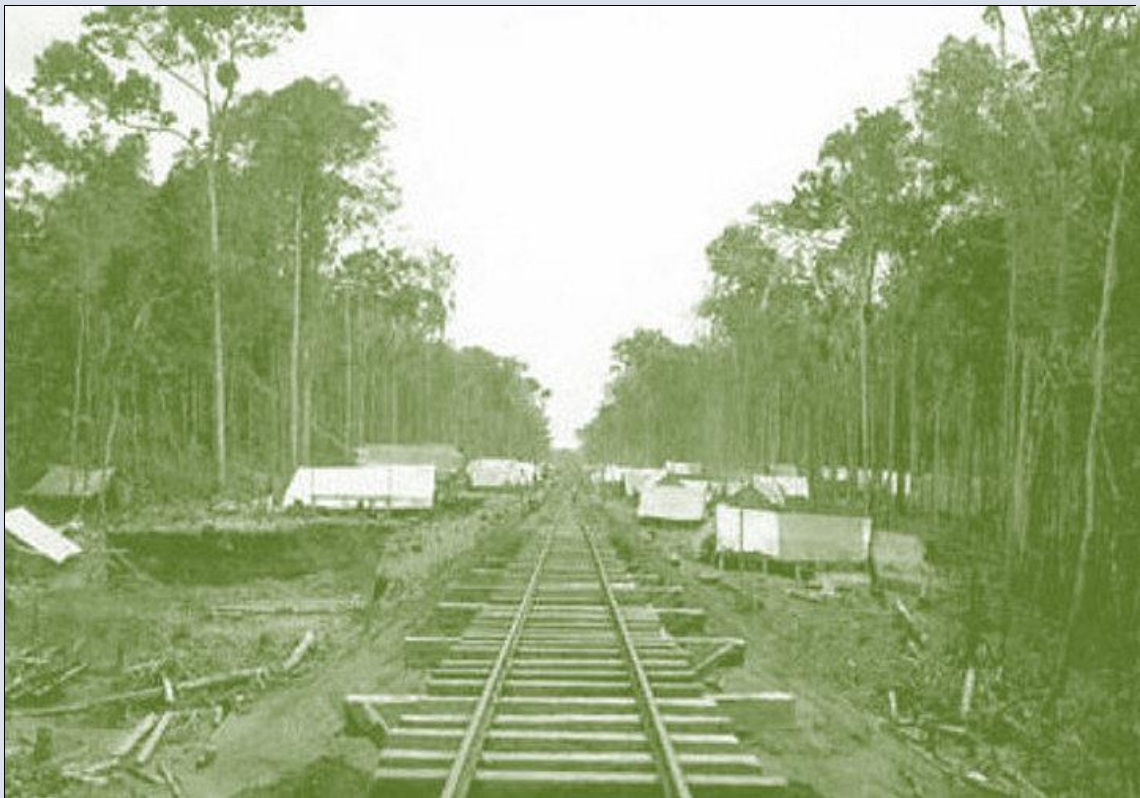
Animals exhausted by the passage through the Bayou

THE TRACK LINE FROM PORTO-VELHO TO GUAJARÁ-MIRIM

The laying of the 366 kilometers of the track during the last phase of the construction of the Madeira-Mamoré railway (1907-1912) took place at a time when the railway industry had developed much since 1829 when the first locomotives arose. But, the obstacles to the laying of dormants and rails changed abruptly from one region to another due to the local topography. The railroad line should extend from the village of Santo Antônio do Madeira to Villa Bella situated at the confluence of the Beni and Mamoré river as it was agreed by the Treaty of Petropolis between Brazil and Bolivia in 1904. As is well known, additional changes were added to the initial project, since, as has been said earlier, the Americans of May, Jekyll & Randolph Co. after the establishment of the village of Railwaymen, which later became called by the daredevils who arrived by the river of “town of the Porto-Velho” – left from there cutting the dense jungle only until Guajará-Mirim during 5 years. On average, 4500 men worked daily distributed in various camps making the “Picadão”, that is, opening a clearing in the forest that allowed the entry of the excavation and grounding machinery. Just remember that in the famous straight of the Abunã the engineers were forced to make the landing of 43 kilometers of flooded area for the laying of the rails of 250 kilos and 10 meters in length. The dormants were imported from Australia and arrived in Porto-Velho on the cargo ships that coming up the Madeira River at the time of the rainy season in the Amazon.



View of a ready stretch of the railroad in a dangerous curve, 1911



Final phase of the laying of the Dormants in a straight in the forest



Area with excavation service completed in the heart of the jungle



Explosion area of rocks with dynamites after the clearing in 1907



Excavation of ravines and earthworks in areas of hills, 1907



Ground removal during drought period from May to September



Stretch of rails near the Jaci river about 1911



Workers getting doses of quinine against the Malária in the road bed



Stretch prepared for line inauguration in 1912



Derailment in ready stretch of the railroad in 1911



Work in the middle of the forest in 1911



Laying of Australian dormants and rails about 1911



Brazilian government agents supervising unfinished stretch



Cut of ravine in a sandy stretch during the rainy season about 1910



Laying of the rails after the cut of the ravine in 1910



Ready stretch being used by work trains about 1911



Deforestation of a swampy area in Abunã



Workers walking up the river near the line of Abunã



Rails covered by clay and mud during intense rainy period



Hard work on a flooded stretch in 1910



Rails being built on rods in a wetland area



Grounding of rails in lakeland region in the Abunã stretch



Laying of Australian dormants after soil leveling in 1911



Wagons of the work train being used as dwellings



Finished stretch of Madeira-Mamoré Railroad around 1911



Excavation of ravine by the side of the road about 1911



Drainage of the soil next to the future iron line



Distribution of remedies and repellents against the Carapanã mosquito



View of a part of the line towards the Porto-Velho around 1912



Railroad collapse in consequence of heavy rains about 1911



Brazilian Government agents visiting the works in 1911



Common landslide of ravines along the line



Grounding of a dry river according to the rubber around 1910



Finished earthwork waiting for the rails in 1910



Open trench for iron line leveling with giant trees on both sides



Perfect cut of the ravine in the middle of the jungle in 1911



Ditch flooded by the waters of the rain during storm



Frequently landslide in deforested stretch, 1911



Unloading materials for manhole construction around 1911



Open ravine in the middle for crossing the rails near Vila Murtinho



Paralyzed work due to heavy rainfall around 1910



Track released for the use of the work train and locomotives 1912



Disruption of the landfill during work train travel about 1910



Earthwork in ravine over 7 meters high during drought



Group of laborers working in the middle of the jungle



View of the open jungle towards the Caracol river around 1911



Rock crusher in action around 1911



Cutting rocks to allow line passage in 1909



Pack-train of mules removing rocks around 1910



Topographic survey in Clearing during the year of 1910



An amazon dry river being grounded during drought period



Bridge made of wood on Igarapé (small brook).



Temporary wooden bridge Installation on the Caracol river



Inspection of rails by railwaymen and engineers and Brazilian officials



Part of the railway completed in the middle of the forest, 1912



Bridge over the Caracol river being built around 1909



Partial view of a finished stretch in a ravines area



Part of the line under construction still on 1911



Stretch of rocks finished around 1911



Exploding area with Dynamites during the year of 1910



American engineers seeing ballast discharges around 1910



One of the deviations of the Madeira-Mamoré Railway



Tangent of 45 kilometers of extension



One of the most difficult tasks was to pluck the stumps of the trees



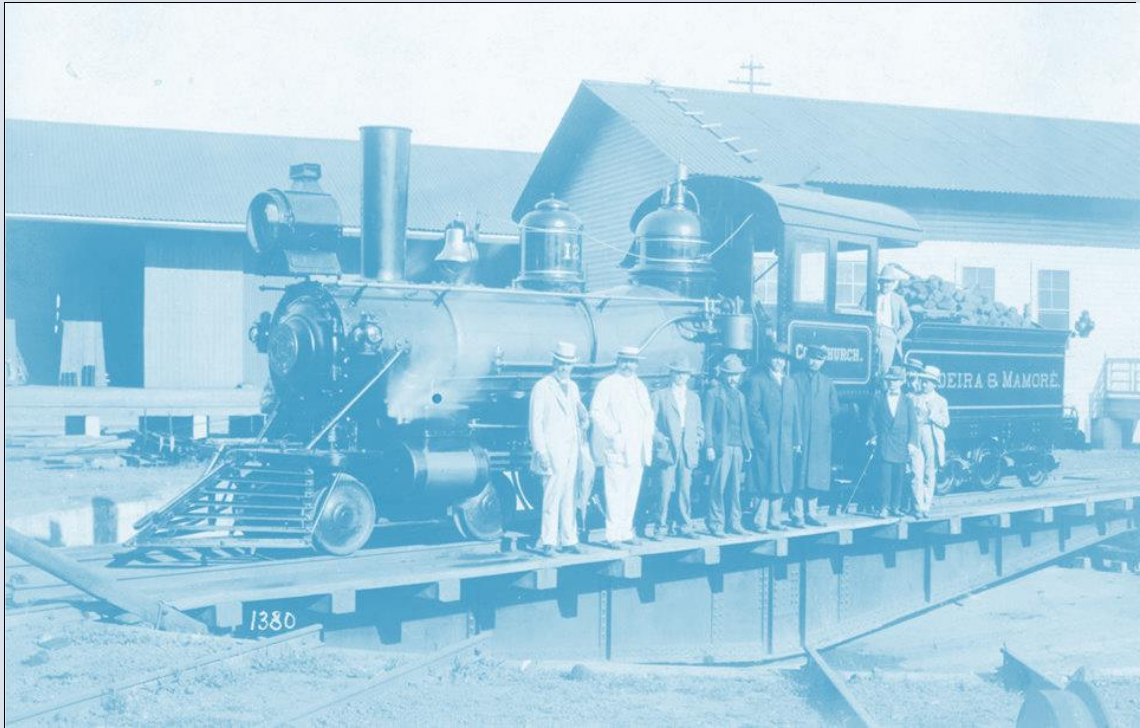
Railroad laborers working in swamp area near to Abunã stretch



Line ready to receive the work trains and the Baldwin locomotives

THE FIRST BALDWIN LOCOMOTIVE

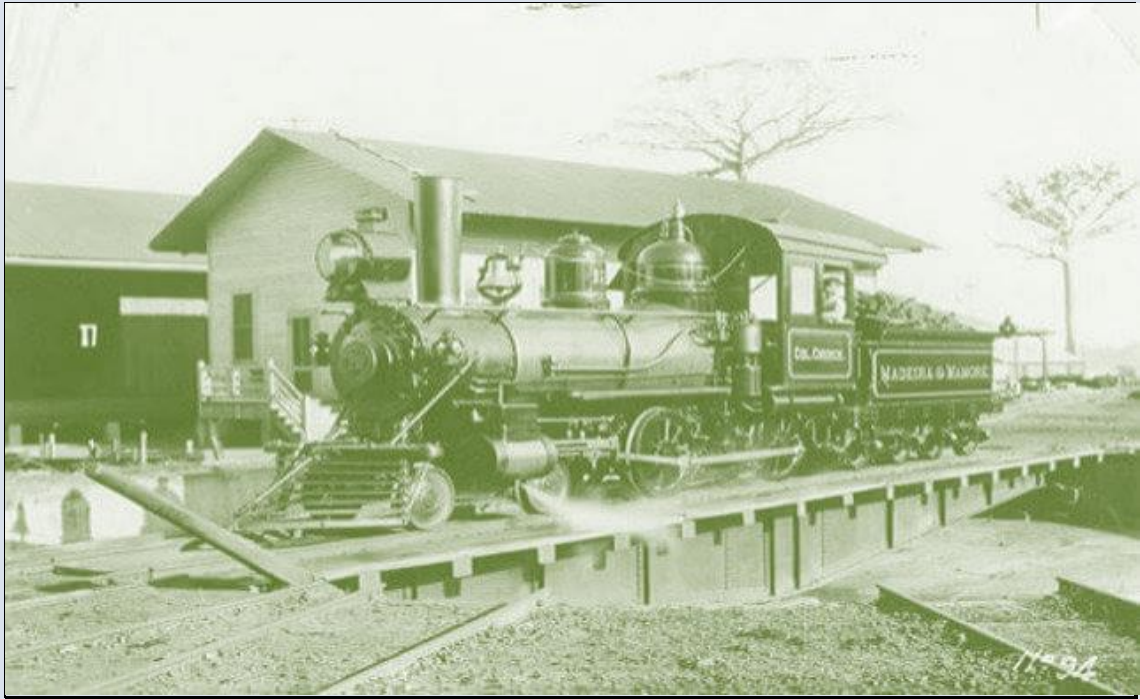
The Mercedita vessel of the Bolivian Navigation Company brought to Brazil the first shipment of materials and men for construction of the Madeira-Mamoré railroad from the pier of Willow Street in Philadelphia on 2 January 1878. In this valuable cargo came a locomotive manufactured by Baldwin Locomotive Works founded in 1831 by Matthias W. Baldwin – the man who transformed his company in a few years into one of the largest locomotive manufacturers in the United States employing in its plants monthly equal number of workers to the contracted by the Madeira-Mamoré Railway Co. during the five-year of the construction of its iron line in the Amazon. As the railroad did not came out of the paper until 1910, period in which it happened the inauguration of the first stretch between Porto-Velho and Jaci-Paraná - the Baldwin locomotive had to be restored by the party of engineers of the May, Jekyll & Randolph Co. The iron horse was photographed in action on the rails by the camera of Mr. Merrill in the courtyard of the Central Station where it is seen that the machine was baptized of “Colonel Church”. The first time the iron machine circulated on the rails was in 1879 when the Collins Brothers attempted to inaugurate 6 kilometers of lines in a disastrous action that ended in the derailment of the locomotive. The photographs show the daily life of the workers and rubber tappers who carried on in the middle of the jungle in what was most modern in terms of transportation of cargo and passengers both in the United States and in Europe of that time.



Locomotive on roundabout at the Porto-Velho Station around 1912



The train was bound to stop at any point of the line for boarding



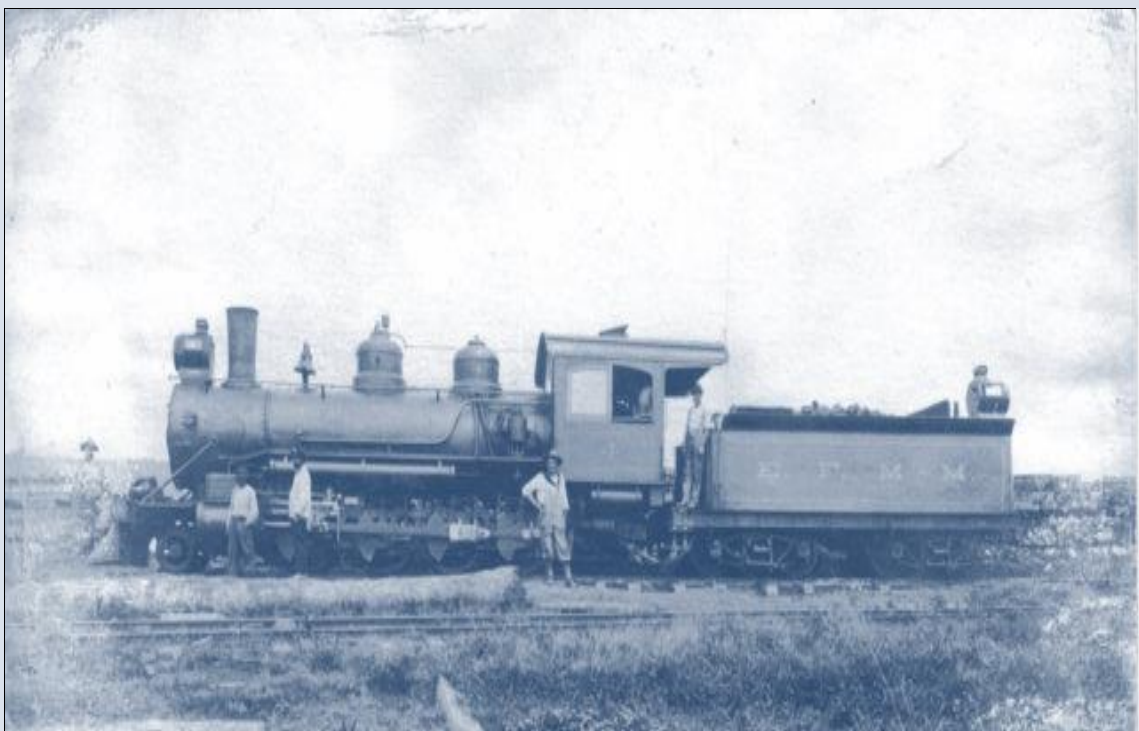
Baldwin locomotive number 12 on top of the roundabout in 1910



Passenger car of the Madeira-Mamoré Co. used during stretch opening



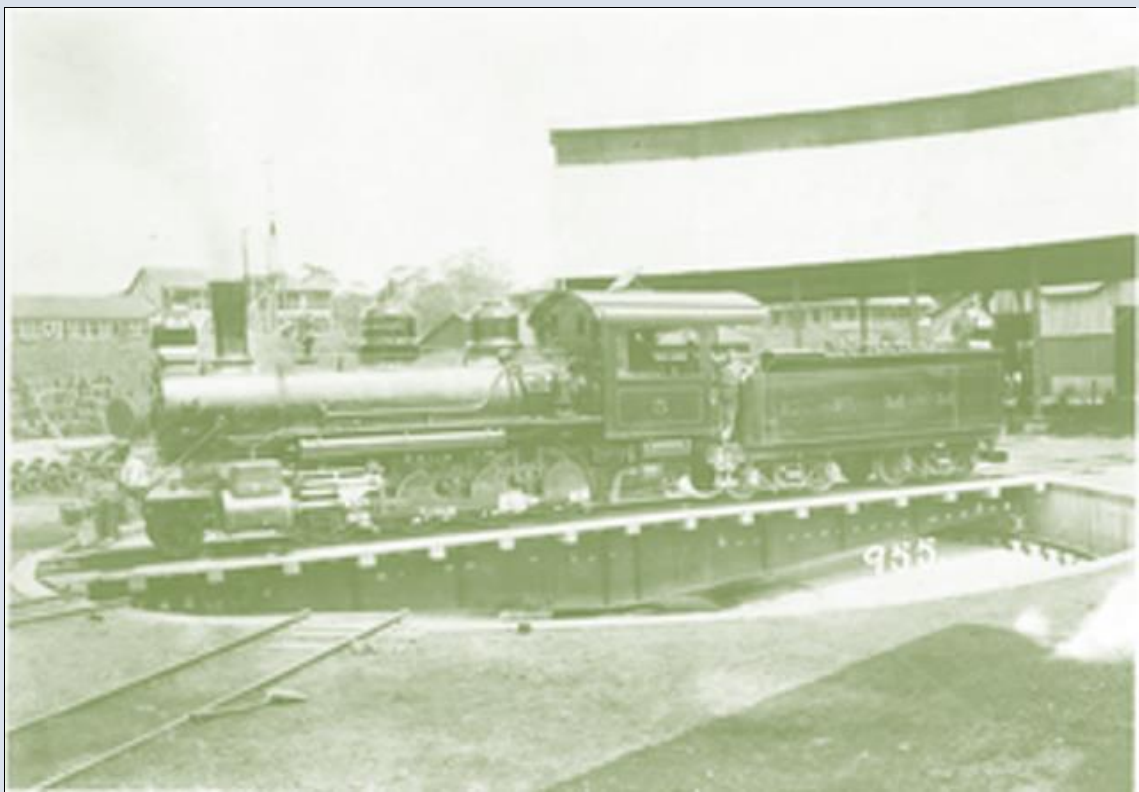
Company staff and Brazilian agents during a tour in the jungle



Train with mechanical problems stopped in the pathway



Litorina used by engineers and physicians of the M. M. Railway Co.



Roundabout in action at the Porto-Velho around 1912



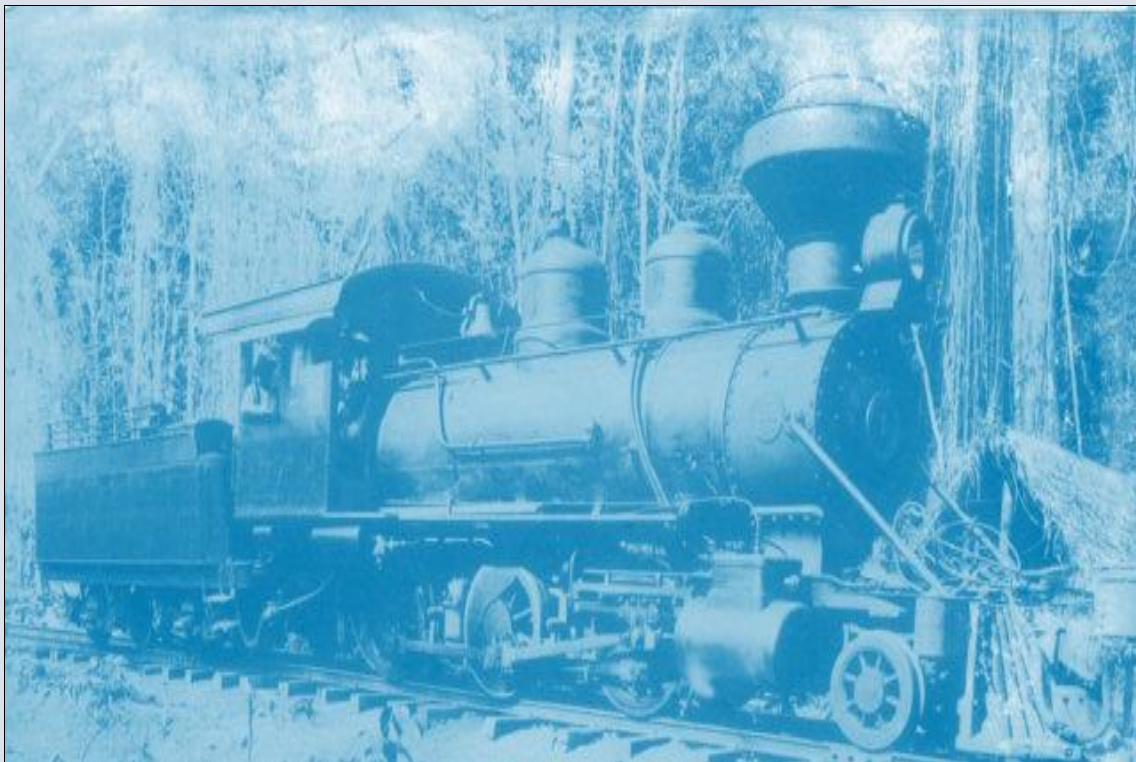
Inauguration day of the first stretch of the railway



Passenger boarding along the route during the year of 1912



Stop obligatory for photography during inauguration



Train derailment on the first day of testing near to Porto-Velho



Abandoned second-class passenger wagon around 1912



Freight wagon at some unknown point of the iron road



View of engineers during inaugural travel in 1911



Work-train taking workers to the camps towards Santo Antônio



Delivery of locomotives on the banks of the Madeira River



Passenger Wagon Manufacturing Workshop in 1910



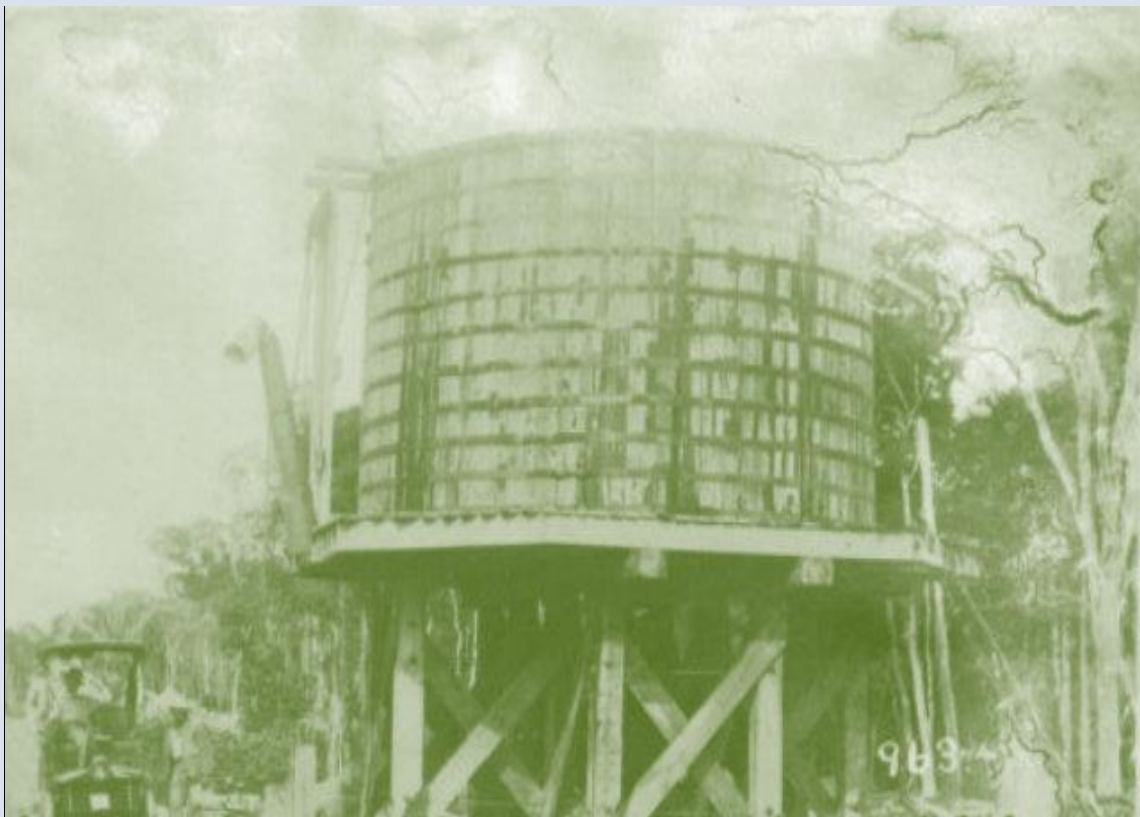
Unloading of bovine animals for consumption during the works



First water tank for supply of locomotives at Candelária in Porto-Velho



Water tank for replenishment at km 47 in São Carlos of 37.800 liters



Water tank of 113.670 liters for replenishment at kilometer 91

THE MADEIRA RIVER

The Madeira River is the main tributary of the Amazon River by the right margin reaching in its estuary 8 kilometers wide, the place that was chosen for the beginning of the settlement of the region by Antônio Raposo Tavares in 1669 when the Tupinambarana Mission was established there, and later from where left the Jesuit João Sampaio towards the first waterfall of the Madeira River. It was the João Sampaio who founded the village of Santo Antônio do Madeira in 1728, where began the first attempt to build the Madeira-Mamoré Railway by english firm - Public works - around 1872. Dana B. Merrill When photographed the grandeur of this giant plentiful of muddy waters, sought to document the difficulties of the first navigators and even the builders of the iron line in circumventing their waterfalls and rapids. The name of some of them, for example, “Boiler of hell” and “Mercy” speak for themselves the size of the trouble that was to navigate through their waters, which motivated the construction of the railway. In spite of the Madeira River during the flooding period in the Amazon inundate tens of kilometers of forests allowing the navigation of large ships, the more than 20 waterfalls were only circumvented by big rowboats (batelões) hauled through the jungle on a type of treadmill made of rounded wood. All the rubber extracted from the Bolivian territory descended by the Beni and Mamoré rivers that by joining in Brazilian lands gave rise to the Madeira River with an extension of 3,315 kilometers from its headwater in the Andes.



View of the mighty Madeira River with its muddy Waters



Panoramic view of the Madeira River in the month of August, 1907



View of the town of Porto-Velho on the other side of the Madeira River



Approaching ship on the banks of the giant Madeira River in 1909



Railroad hunters slaughtering an alligator on the bank of Madeira



During the months of May and September the rocks appear in the middle of the Madeira River at Ribeirão



View of the houses of the village of Santo Antônio



American engineers sitting on the rocks of the Madeira River



Turbulent rapids of the Madeira River during rainy season in Teotônio



Rapids of the Madeira River during the summer in Amazon in 1909



Batelão being taken by rubber tapper and railwaymen by land



Morrinhos rapids during dry period in Amazon



Straw huts on the other side of the river in a small clearing



Candelária View from afar around 1910



Beginning of the town of Porto Velho in 1909



Group of engineers and workers on the banks of the river



Indigenous canoes used by rubber soldiers and railwaymen



Workers on the day off on the immense rocks of the Madeira River



View of the region of the lower Paredão during drought in 1910



Workers sailed by an igarapé during the flood season



Expedition at the time of topographic survey of the Collins Brothers



Rocks exposed on the river bed between July and September



Hard work of railwaymen to haul an immense Batelão



Girao waterfall on a normal day in the tropical Amazon



The heartwarming and noisy waterfall of Girao



Panoramic view of the Três Irmãos River



Several workmen hauling a Batelão by land around 1909



Giant stones on the bed of the Madeira River in 1910

THE CARIPUNA INDIANS OF THE JACI-PARANÁ RIVER

The State of Rondônia that at the time of the beginning of the construction of the first railroad of the Amazon between 1872 to 1912 belonged to the states of Mato Grosso and Amazonas had a huge indigenous population composed of 39 ethnic groups that spoke 29 languages and various dialects. Some of these indigenous groups were already in contact with the settlers of the basin of the Madeira River from the beginning 18th century, but the Caripuna only reached the basin of the Jaci-Paraná river in the place where they were found by the second group of railway builders of the Brothers Philip and Thomas Collins almost a century after tribal struggles in the region of the Tapajós river where they came from. One of the reasons that led to the P. & T. Collins contractor abandoning the construction of the railway was that the Collins themselves were attacked by the Caripuna in the kilometer 90 during the opening of the clearing of the jungle and topographic survey. However, it was only during the restart of the laying works of the tracks in this location by May, Jekyll & Randolph Co., that there was a great conflict between Indians and builders. In spite of the photographs of Dana B. Merrill showing a friendly relationship between whites and Indians, the company's records reveal that the Indians attacked the camps and also destroyed part of the rails, a fact that forced the engineers of the railroad, electrifying stretches of the line in the area of the Jaci-Paraná River. Many Indians were electrocuted and for that reason they abandoned the thorp and a small group less unsociable already in the final stage of the work, helped in the construction and maintenance of the line years later.



Group of Caripuna Indians along the Jaci-Paraná river in 1907



Engineers from May, Jekyll & Randolph in contact with the Caripuna



Party of engeneers and Indians in the middle of the jungle



Casual meeting between Indians and workers in the Jaci river



Caripuna indians fishing in the Jaci- paraná river around 1910



Indigenous Caripuna children and their parents fishing in a canoe



Indians in contact with workers during hunting



Indians in the Três Irmãos River



Indians Caripuna and their new foreign friends in 1910



Caripuna indians around 1910, Mutum-Paraná



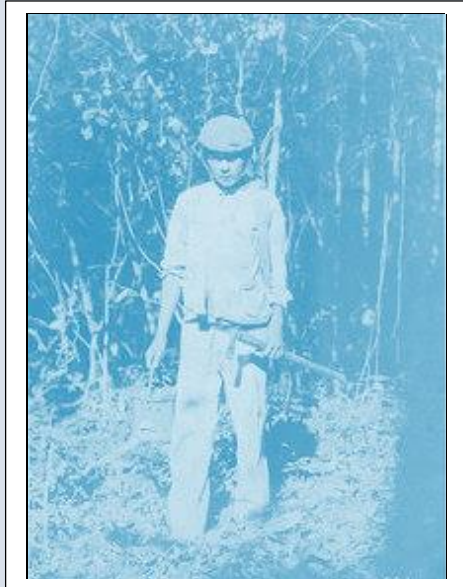
Indians Caripuna of the Mutum-Paraná river around 1908



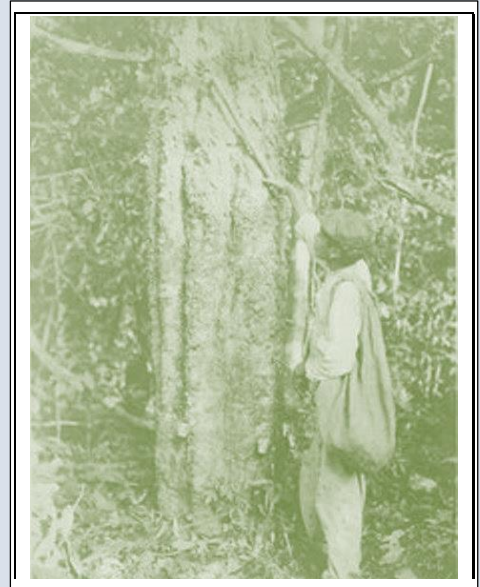
Friendly conversation between white men and Indians

THE SERINGALS AND THE RUBBER TAPPERS

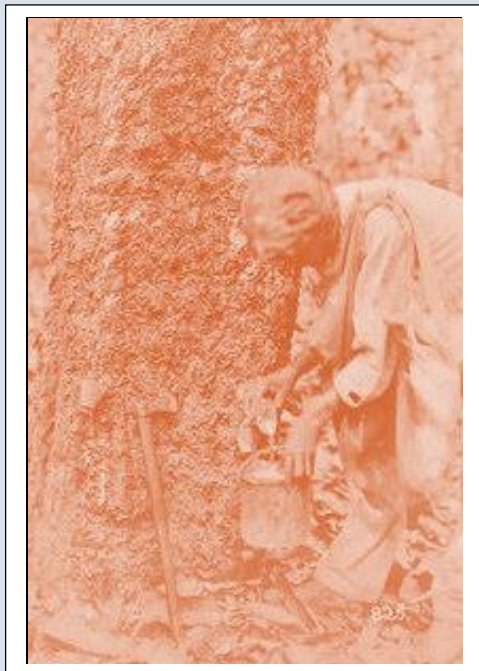
The rubber vulcanization process discovered by Charles Goodyear around 1831 provoked a high demand for latex in the Amazon. The American automobile industry that controlled the price of raw material in the international market pressed the Brazilian government to explore the vast rubber woods of the Amazon rainforest that were in the hands of half a dozen rubber tappers unable to extract the rubber required to meet the worldwide demand of the product. Historically, the first rubber cycle in the region took place from 1830 to 1912, despite the fact that the natural resources in the region were never important during the Empire. But when many gold miners abandoned the gold exploration in the Valley of the Guaporé-Mamoré, thousands of adventurers became rubber tappers in search of the so-called by the Amazonids "white gold" that is taken from the giant trees scientifically called *Hevea brasiliensis*. For the disposal of the large scale production of the Bolivian and Brazilian latex it was necessary to build the railroad Madeira-Mamoré in Brazil in which it was released the use of it to Bolivians as a form of compensation for the region of the Acre, which was at that time a large producer center of latex and that belonged to Bolivia according to the Treaty of Ayacucho of 1867, but which was already occupied by Brazilians in the late 18th century. The Suárez & Hermanos Company was the largest buyer of latex transported by the railroad in 1912; however it has been active in the region since 1877 when it settled in the Alto Madeira



Rubber soldier



Hevea brasiliensis



Latex extraction



Rubber milk



Latex smoking by a rubber soldier in the middle of the jungle



Brazilian northeast working with Latex around 1910



Rubber Depot at Station awaiting dispatch in 1912



Everyday life in the village of Rubber tappers in the year of 1912



Rubber balls awaiting boarding the railroad side around 1912



A normal day in the village of Santo Antonio do Madeira



Normal work of a tapper in the middle of the rainforest



Suarez & Hermanos Company the largest rubber buyer in the Amazon



Villa Bella on the Bolivian side of the border with Brazil in 1910



Closer view of Villa Bella's houses and of a boat on the riverbank



Women of engineers in a leisurely moment at Villa Bella, 1911



Brazilian consulate in Villa Bella about 1910

THE GIANT TREES

The Powerful rubber tree is only a small example of the richness of the large trees that make up the immense rainforest that covered the entire northern region of Brazil at the time of the establishment of the Madeira-Mamoré railroad in 1912, when it was completed. Obviously that in a forest rich in noble woods, perhaps it would not have been so difficult to extract the wood needed for the dormants of the line, if it were not the total ignorance of the region by the contractors of the Madeira-Mamoré Company that administered the construction of the railroad. Itaúba, Ipê and Faveira-Ferro were only a small sample of what the great *Hiléia brasiliensis* had to offer. The lack of knowledge about the Brazilian trees has radically changed the course of the work so that the thousands of dormants had to be imported from the Australian woods. The photographs taken by Mr. Merrill are the best and most comprehensive set of images depicting the grandeurs of the trees that were in the path of the railwaymen. Castanha and Sumaúma trees of 45 meters high and 2.45 meters in diameter were common trees for example, on the banks of the Madeira River which bears that name precisely by plucking and carrying these trees among others of a considerable number of species, all of a roughly similar shape and length - during the period of flooding with the forces of its waters downstream. These Amazonian giants were felled by axes and saws to liberate the passage of the rails and settlements of the villages and camps that were appearing day-to-day as the service fronts were advancing to Guajará-Mirim where the end point of the line was.



Closer view of a Sumaúma one of the largest trees in the Amazon



Workers proud to take down the giant Sumaúma in Porto-Velho, 1907



End of the line for a Cantanha tree (Bertholletia) of 40 meters long



Clearing being opened in the forest by choppers near to Vila Murinho



Paineira is one of the largest trees of the Amazon



Choppers in front of a giant Imbireira tree of 40 meters long



Clearing at the beginning of a stretch of the future iron line in 1909



Line workers posing for photographs on the trail in the jungle



Burial ground of the Candelária under the trees in the year of 1909



Hard work of deforestation and cleaning in the closed forest



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